

Bee Hollow Conservation Area

Ten Year Area Management Plan
FY2013-2022




Batterson Larre
Wildlife Division

6/17/14
Date

Bee Hollow Conservation Area Management Plan Approval Page

PLANNING TEAM

Darren Thornhill, Fisheries Division

Cody Smith, Forestry Division

Chad Smith, Wildlife Division

Matt Bergfield, Protection Division

NORTHEAST REGION

RCT Chair

Brian Todd
Signature

5-21-14
Date

WILDLIFE DIVISION

Unit Chief

Michael Schaefer
Signature

6/3/14
Date

OVERVIEW

- **Official Area Name:** Bee Hollow Conservation Area, #9232
- **Year of Initial Acquisition:** 1986
- **Acreage:** 271 acres
- **County:** Macon and Randolph
- **Division with Administrative Responsibility:** Wildlife
- **Division with Maintenance Responsibility:** Wildlife
- **Statements of Purpose:**

A. Strategic Direction

The Missouri Department of Conservation (MDC) manages Bee Hollow Conservation Area (CA) to improve wildlife habitat, increase species diversity and set an example of sound natural resource management.

B. Desired Future Condition

The desired future condition of Bee Hollow CA is a complex of woodland, wetland and open field habitats for all wildlife, including deer, turkey, waterfowl, and species of conservation concern, while providing an inviting public area with adequate facilities to accommodate the anticipated area use. A minimal number of agricultural acres may need to be converted to restore desired riparian areas.

C. Federal Aid Statement

This area, or a portion thereof, was acquired with federal funds and donated to the State to provide fish and wildlife benefits and land conservation.

GENERAL INFORMATION AND CONDITIONS

I. Special Considerations

- A. **Priority Areas:** None
- B. **Natural Area:** None
- C. **Other:** Bee Hollow CA was formerly mined for coal and has abundant spoil piles on the eastern half of the area. In 2009, the Missouri Department of Natural Resources (DNR) initiated a mine reclamation project near the location of the area parking lot. The final stage of this project was a grass seeding conducted in January of 2013 by MDC. Following the seeding, the project will go into the maintenance phase with MDC responsible for maintenance and management of the seeding for the benefit of wildlife. Attached to this plan is a copy of the consent form agreed to by MDC and Missouri DNR.

II. Important Natural Features and Resources

- A. Species of Conservation Concern:** Species of conservation concern are known from this area. Area Managers should consult the Natural Heritage Database annually and review all management activities with the Natural History Biologist.
- B. Caves:** None
- C. Springs:** There is one small wetland on the area that appears to be fed by a spring.

III. Existing Infrastructure

- The unimproved road on the western half of the area provides good access for the public by foot and is utilized by MDC to perform maintenance and management tasks. This road is also utilized by the permittee farmer to access the agricultural fields on the conservation area. This road will be maintained to a standard suitable to all of these uses.
- There are three water control structures that are utilized to manage water levels in the area wetlands.

IV. Area Restrictions or Limitations

- A. Deed restrictions or ownership considerations:** None.
- B. Federal interest:** Uses of land acquired with federal funds may not interfere with the purpose for which it was acquired. Federal funds may also be used in the management of this land. Fish and wildlife agencies may not allow recreational activities and related facilities that would interfere with the purpose for which the State is managing the land. Other uses may be acceptable and must be assessed in each specific situation.
- C. Easements:** None.
- D. Cultural resource findings:** Yes, records kept with MDC Environmental Compliance Specialist. Managers should follow Best Management Practices for Cultural Resources found in the MDC Resource Policy Manual.
- E. Hazards and hazardous materials:** The former land use of strip mining left some steep, unstable embankments that can cause acid-forming sediments to enter nearby streams and wetlands. The recent 2009 reclamation project remedied the largest portion of the mined area. Staff will continue to look for other problem areas created by the past mining operations and address them as necessary.
- F. Endangered species:** None known.
- G. Boundary issues:** None.

MANAGEMENT CONSIDERATIONS

V. Terrestrial Resource Management Considerations

The area contains a mix of habitat types including tracts of mixed hardwoods, riparian corridors dominated by softwood species, oxbows, sloughs, seasonal wetlands and bottomland crop fields. This intermingling of habitat types has resulted in sustainable populations of white-tailed deer and wild turkey. The area's oxbows and sloughs contain abundant muskrat populations as well as provide excellent amphibian and reptile habitat and resources for migrating waterfowl and nesting waterbirds.

Challenges and Opportunities:

- 1) Agricultural fields will be contract planted and placed in a traditional crop/idle rotation. Wildlife Division staff will continue to maintain small foodplots and green browse plots to supplement natural food supplies for wildlife. A portion of the crop planted by a permittee farmer will be left in the field for wildlife. Potential developments to enhance the ability to flood these fields for migratory waterfowl will be investigated. The open field created by the aforementioned reclamation project has been planted to native grasses and forbs and will be managed to encourage and proliferate these species.
- 2) Bee Hollow CA has multiple wetland resources. These wetlands are primarily oxbows and sloughs created by the channelization of the East Fork Little Chariton River. There are three water control structures on the area accessible by the unimproved road. These structures are utilized to hold water in the wetlands as well as release the water onto crop fields during the fall for migratory birds. The current state of most the wetlands resemble emergent marsh and are dominated by *Typha* species. There have previously been plans to further develop the wetlands on the area to make water levels more manageable therefore providing a greater ability to manipulate and improve wetland habitat. Surveys have been done and preliminary designs made by MDC WETS Biologist. Additionally, there is one wetland that is spring fed. A small construction project has also been proposed to add a structure to the southernmost oxbow which would allow water level manipulation and flooding of additional acres.
- 3) The wooded acreage on Bee Hollow consists of terrain that greatly limits the ability to conduct timber harvests. The eastern half of the area is spoil ridges left after coal mining and the western half of the area consists of low lying river bottom fields and beaver ponds. A timber inventory is planned to be conducted in fiscal year 2016 prior to any proposed timber stand improvement practices.

Management Objective 1: Reduce sericea lespedeza, fescue, reed canary grass, autumn olive and other exotic plants on the area through prescribed fire, mechanical, and herbicide applications.

Strategy 1: Reduce sericea lespedeza, reed canary grass and fescue through an aggressive combination of prescribed fire and herbicide applications.

Strategy 2: Reduce autumn olive on the area using mechanical treatments and/or herbicide.

Strategy 3: Incorporate autumn olive control in all forest and woodland thinnings.

Strategy 4: Pursue options to enhance autumn olive control efforts including outside funding, district workdays, etc.

Strategy 5: Plant only native vegetation when permanent plantings are needed.

Management Objective 2: Provide cereal grain and green browse food plots to enhance small game hunting. Maintain permittee crop activity and presence on the area.

Strategy 1: Continue to work with a permittee farmer and Design and Development staff to ensure that all fields in the crop plan are accessible to agricultural equipment.

Management Objective 3: Manage the limited open fields not in crop production in a manner that provides early successional habitat.

Strategy 1: Annually disk or leave idle previous year food plots on open fields to provide early successional habitat.

Strategy 2: Remove undesirable woody vegetation from open fields and create down woody cover.

Strategy 3: Manage native grasses and forbs to create habitat on open land created by the reclamation project.

Management Objective 4: Manage available shallow water wetland resources when allowable.

Strategy 1: Control woody invasion in accessible wetlands not associated with stream corridor protection during dry years by mowing sprouts.

Strategy 2: Promote early successional wetland plant species by disk ing portions of the wetlands when conditions allow.

Strategy 3: Maintain a component of emergent marsh by providing, to the extent possible, deep water marshes year round.

Strategy 4: Control all known invasive wetland plants, especially reed canary grass, in accessible wetlands as allowable by water levels.

Management Objective 5: Seek ways to ensure dependable water supply for each wetland unit and increase water level management potential.

Strategy 1: Propose diversion of excess water from spring-fed wetland unit to other wetland units.

Management Objective 6: Maintain the forest/woodland in a healthy condition.

Strategy 1: Conduct forest inventory as needed to provide information on forest stand conditions to aid in conducting forest/woodland management.

Management Objective 7: Manage spoil ridges in order to provide wildlife habitat focused on healthy, diverse upland forest.

Strategy 1: Maintain a proper mix of upland tree species through timber stand improvement.

Strategy 2: Create group openings during management activities.

Management Objective 8: Manage low lying, forested sites in order to provide wildlife habitat with a focus on healthy, diverse, bottomland forest.

Strategy 1: Maintain a proper mix of bottomland tree species through timber stand improvement.

Strategy 2: Consider planting beneficial tree seedlings in areas with reed canary grass.

VI. Aquatic Resource Management Considerations

Challenges and Opportunities:

- 1) There are approximately 0.75 miles of first and second order stream channels on Bee Hollow CA. Additionally, the East Fork Little Chariton River forms the western property boundary of the CA for approximately 1.1 miles. The current riparian corridors along East Fork Little Chariton River are not wide enough to provide proper ecological function and need to be expanded.

Management Objective 1: Improve long-term stream stability and ecological function on Bee Hollow CA according to MDC Watershed and Stream Management Guidelines.

Strategy 1: Establish and maintain a minimum 100-foot wide, wooded riparian corridor on all lands bordering East Fork Little Chariton River by 2020. Existing levees and other constructed wetland structures may prevent this along some portions of the river.

Strategy 2: Establish and maintain a minimum 50-foot wide, wooded riparian corridor on all lands bordering East Fork Little Chariton River tributaries on Bee Hollow CA by 2020. Existing levees and other constructed wetland structures

may prevent this along some portions of the tributaries. Some existing field roads and food plots may have to be relocated to expand the corridor to 50 feet.

VII. Public Use Management Considerations

Challenges and Opportunities:

- 1) Bee Hollow CA offers public use opportunities which include hunting, fishing, camping, picnicking, and bird watching. Currently the area infrastructure consists of one parking lot and one unimproved road that travels through the area from north to south and is open to foot traffic only. No trails or shooting ranges are available on the area. Camping is allowed in and adjacent to the parking lot and by Special Use Permit for groups of 10 or more. Walk-in camping is also allowed except during firearms deer and turkey seasons. Moderate public use occurs during all firearms deer seasons and the spring turkey seasons. Moderate use occurs on the wetlands on weekends during the waterfowl season. Area use by the public is light the remainder of the year.

Management Objective 1: Maintain the current facilities to a standard that invites public use and keeps area users informed of regulations.

Strategy 1: Keep area brochure on bulletin board and map box stocked at area parking lot.

VIII. Administrative Considerations

Challenges and Opportunities:

- 1) If an opportunity arose to acquire adjacent land that would provide more diverse or quality public opportunities or natural communities it should be evaluated to determine if it fits regional land acquisition priorities. As noted by the attached area map, the boundary of the area is irregular. Land acquisition that meets these goals would be favored by current area management staff.

Management Objective 1: Evaluate land offered for sale adjacent to Bee Hollow CA.

Strategy 1: Closely scrutinize adjacent properties offered for sale to ensure it promotes and enhances the purpose of the area and mission of the Department without excessive addition of workload.

MANAGEMENT TIMETABLE

Strategies are considered ongoing unless listed in the following table:

	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23
Terrestrial Resource Management										
Objective 6										
Strategy 1	As needed.									
Aquatic Resource Management										
Objective 1										
Strategy 1						X	X	X	X	X
Strategy 2						X	X	X	X	X

APPENDICES

Area Background:

In 1986, the Missouri Department of Conservation acquired the property in a land transfer with the Farmers Home Administration. This 271-acre area contains 167 acres of forest, 52 acres of cropland, 36 acres of wetlands, 8 acres of grassland and 8 acres of old fields. Walk-in access to the East Fork of the Little Chariton River is available. One mile of stream frontage lies along the western boundary of the area. The eastern half of the area is spoil ridges left after coal mining. The western half of the area consists of low lying river bottom fields and beaver ponds. The wetland pools and oxbow sloughs on the western half of the area attract a variety of nesting and migrating waterfowl.

Bee Hollow Conservation Area is managed primarily for waterfowl, deer, and turkey. The wetland pools are managed to provide fall and spring migration habitat while providing habitat for reptiles and amphibians. Management of the area includes farming, moist soil wetland management, timber management, and controlled burns to improve wildlife habitat and increase species diversity.

Current Land and Water Types

Land/Water Type	Acres	% of Area
Forest	167	62
Permittee Cropland	52	19
Wetland	36	13
Grassland	3	3
Old Field	3	3
Total	271	100%

Public Input Summary:

The draft Bee Hollow Conservation Area Management Plan was available for a public comment period December 1–31, 2013. The Missouri Department of Conservation received comments from three respondents (Appendix A). The Bee Hollow Conservation Area Planning Team carefully reviewed and considered these ideas as they finalized this document. A brief summary of public input themes – including how they were incorporated or why they were not can be found below. Rather than respond to each individual comment, comments are grouped into general themes and are addressed collectively.

MDC responses to themes and issues identified through Bee Hollow public comment period**Suggests larger tracts of bottomland forest (beyond riparian corridors).**

As noted in the plan, expansion of the riparian corridor is a priority for Bee Hollow to assist with stream protection. In the past, efforts have been made in some of the fields to increase bottomland forest but were unsuccessful due to the invasion of reed canarygrass. When left idle for extended periods of time, these bottomland fields become dominated by mostly undesirable species to wildlife. Current area management places a high priority on controlling invasive species, such as reed canarygrass, prior to undertaking bottomland forest restorations in the future, when success would be more likely.

Agree with reducing invasive species. Suggests washing off mowing equipment after mowing infested areas.

The practice of cleaning mowing equipment off to reduce the spread of invasive species is regularly performed. Control of invasive species will continue to be a high priority at Bee Hollow.

Concern with amount of row crops. Would like to see more native plants/wetland restoration.

Staff has recently completed a grassland restoration project using all native plants on the mine reclamation site referenced in the plan. There are currently two projects approved in the fiscal year 2014 budget to enhance wetlands on Bee Hollow. Row crop acres account for less than 20% of total area acreage. In dry years like 2012 and 2013, those acres are slightly expanded to utilize the disturbance created by row crop production to combat invasive species such as reed canarygrass that are common in the Bee Hollow wetlands. This disturbance also stimulates increased beneficial native wetland plant growth the following year if left idle. In wet years, the row crop acres are greatly reduced due to the increased water in the wetlands.

Suggests allowing archery and muzzleloader deer hunting only on this area.

Deer regulations on conservation areas are currently being reviewed. It is hoped that within 18-24 months there will be a set of regulations available so that the area manager will be able to select the regulation that best suits sound management of the deer herd on the area. Deer herd size, deer population trend, amount of hunting pressure, and size of conservation area are a few of the elements that will factor into selecting the deer regulation for the conservation area.

References:

Missouri Department of Conservation Atlas Database accessed February 2013.

Missouri Department of Conservation Natural Heritage Database accessed February 2013.

Personal interviews and correspondence with MDC staff including: George Shurvington, Mark Switzer, Darren Thornhill, Cody Smith.

Missouri Department of Natural Resources personnel: Mike Mueller

Missouri Department of Conservation Watershed and Stream Management Guidelines 2009.

Additional Appendices:

Appendix A. Draft Bee Hollow Area Plan Public Comments

Maps:

Figure 1: Area Map

Figure 2: Map of Cover Types

Figure 3: Map of Reclamation Area

Figure 4: Land Reclamation Agreements

Appendix A. Draft Bee Hollow Area Plan Public Comments

Received during public comment period (December 1-31, 2013)

Managing and reducing populations of exotic species (Lespedeza sericea, Tall Fescue, and Reed Canary Grass) is strongly encouraged. I appreciate this in the actual management plan.

One of the ways to reduce exotic species and enhance wetlands is to reduce or eliminate row cropping wetlands and the fields that surround the wetlands.

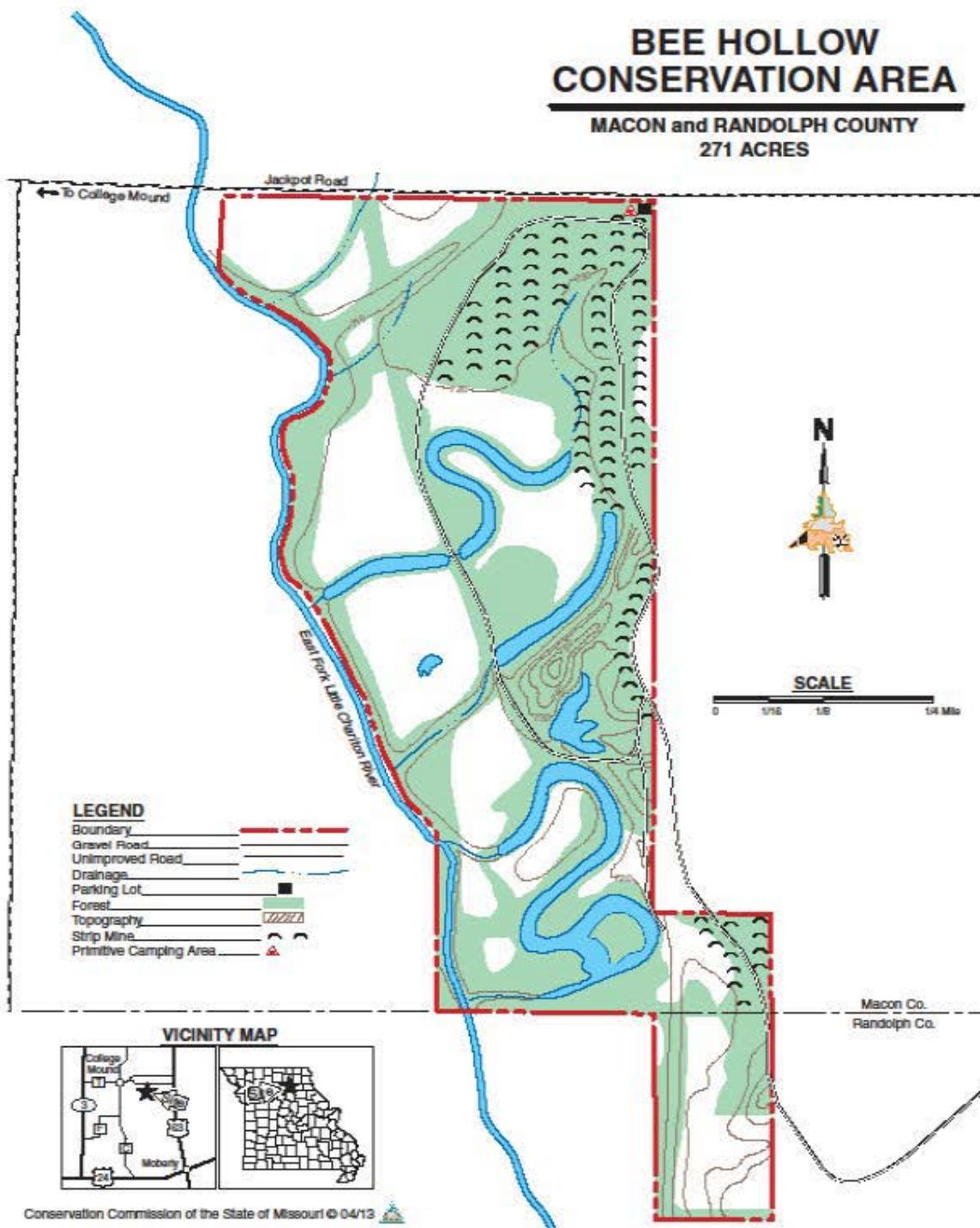
The amount of disturbance needs to be significantly reduced. I was performing a wetland survey this past summer and there was significant row crops (corn) through the wetland sites. Furthermore, turnips were planted through the wetland as well.

Another aspect of managing Conservation Areas, in general, is to wash off mowing equipment after mowing through areas that are infested with exotic species and before mowing through non-infested areas. I have been to numerous CA areas (Chloe Lowery Marsh, Rebel Cove, Franklin Island, and etc.) where the mowing occurs first through populations of exotic species and then continue through native vegetation (often through a natural area or pristine section of the wetland).

Just my two-cents,

I would like to see this area regulated as a Archery and Muzzleloading area only for deer.

1. Incorporate larger tracts of bottomland forests into the plan - not just expanded riparian corridors.
2. Eliminate all or most of the row crop agriculture. Create more emergent marshes in the current crop fields.
3. This C.A. has such great potential for native plants and wetland restoration. There is enough agriculture in the area, there are enough corn/soybean fields in northern Missouri.

Figure 1: Area Map**Figure 2: Map of Cover Types**

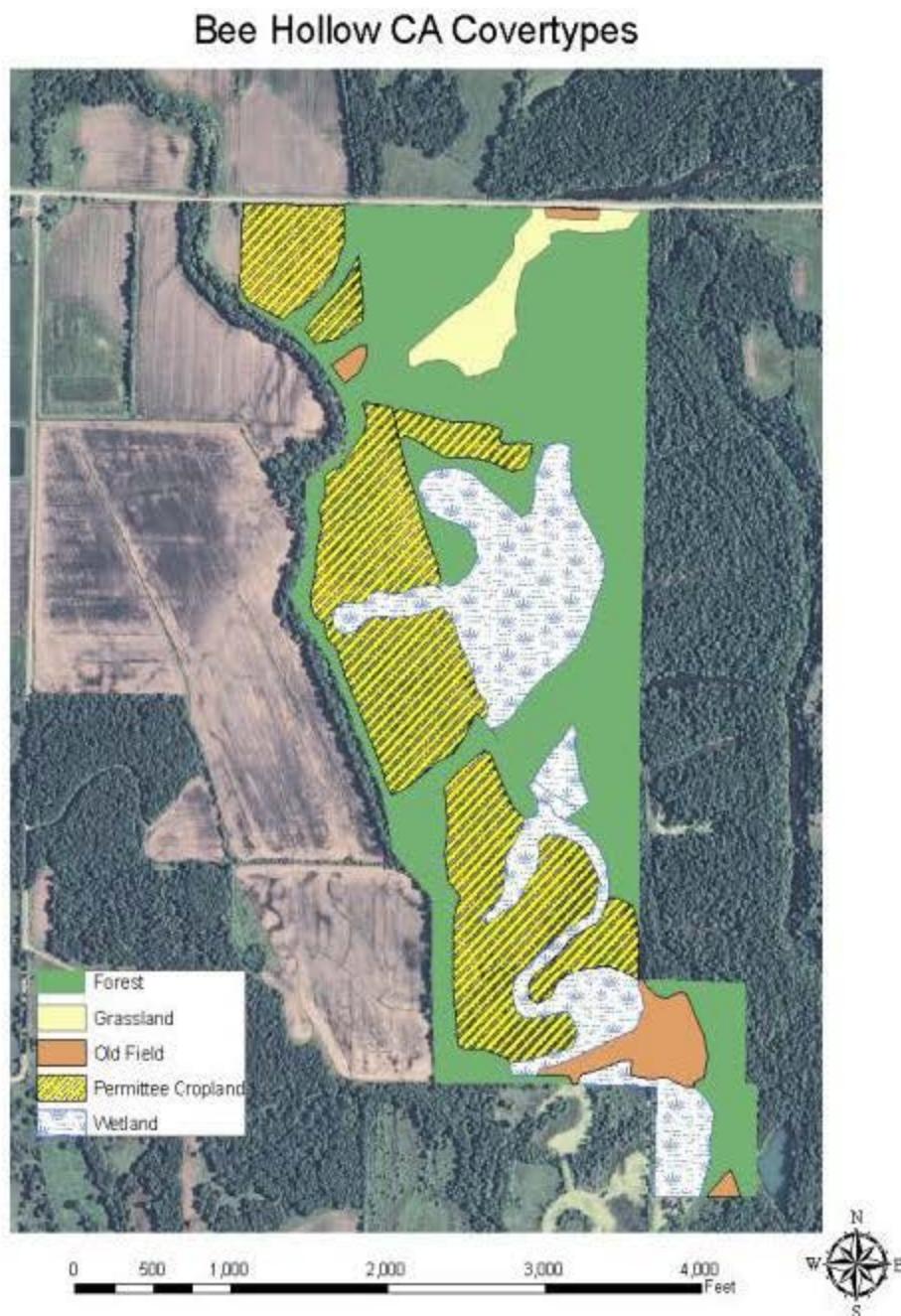
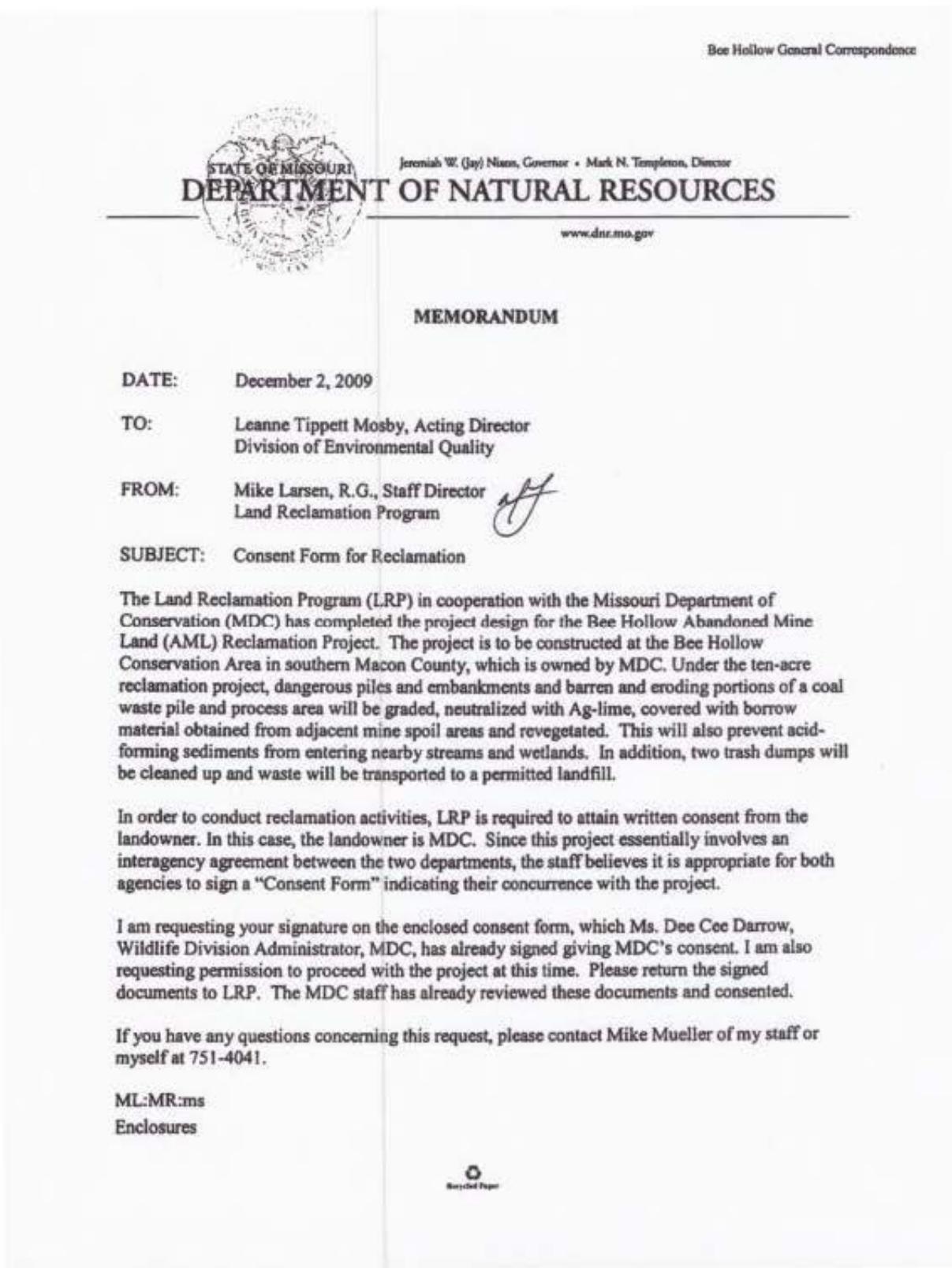


Figure 3: Map of Reclamation Area

Bee Hollow CA Reclamation Area



Figure 4: Land Reclamation Agreements

RECEIVED
MO. LAND RECLAMATION COMM.BEE HOLLOW AML RECLAMATION PROJECT
Consent Form

JUL 3 0 2009

The Missouri Department of Natural Resources, Land Reclamation Program (LRP) in cooperation with the Missouri Department of Conservation (MDC), has completed the project design for the Bee Hollow Abandoned Mine Land (AML) Reclamation Project. The project will be constructed within the Bee Hollow Conservation Area, owned and managed by MDC.

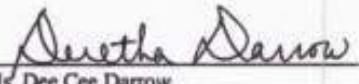
The Bee Hollow AML Project will reclaim approximately 9 acres of abandoned coal strip mine lands to: 1) eliminate the safety threat posed by several steep and unstable embankments, 2) prevent acid-forming sediments from entering nearby streams and wetlands, and 3) bury coal waste to significantly reduce the amount of polluted water that drains into the East fork of the Little Chariton River. Under the scope of work, the barren and eroding portions of a ~~coal~~ waste pile and process area will be graded, neutralized with ag-lime, covered with borrow material obtained from adjacent mine spoil areas (dangerous piles and embankments) and revegetated. The project site will be planted to a coverage crop such as clover and wheat or rye temporarily, and then will be planted to native, warm season grasses and some trees. Upon completion of the construction, final seeding and maintenance phases of the project, MDC shall resume responsibility for the project site. An outline of project responsibilities for the two agencies is attached.

Construction of the Bee Hollow AML Reclamation Project will be administered by LRP and the State of Missouri, Office of Administration, Design and Construction. Construction activities shall strictly adhere to that work which is described in the project plans and specifications. There will be no cost to MDC for work completed under this project. The reclamation activities of LRP are totally funded from the federal Abandoned Mine Land Reclamation Fund, which is administered through the U.S. Department of the Interior, Office of Surface Mining. All of the money in this fund is collected from active coal mining companies through fees based on tonnage of coal mined.

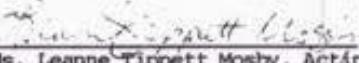
LRP will be responsible for providing on-site inspection to oversee construction activities. LRP will continue to coordinate with MDC personnel during the construction phase. Any necessary changes to the design during the construction phase will be coordinated with MDC personnel.

LRP will indemnify and hold MDC harmless from any and all liability which may occur as a direct and proximate result of any and all activity by LRP, including its agents, employees and assigns, on or about the location of this project site for the duration of the project.

The appropriate MDC staff members have reviewed and concur with the project plans and specifications. By signing and dating below, the Missouri Department of Conservation authorizes the Missouri Department of Natural Resources, Land Reclamation Program to proceed with construction activities on the Bee Hollow AML Reclamation Project.


Ms. Dee Cee Darrow
Wildlife Division Administrator
Missouri Department of Conservation

11/16/09
Date


Ms. Leanne Tippett Mosby, Acting Director
Division of Environmental Quality
Missouri Department of Natural Resources

11/17/09
Date

RECEIVED
MODERNIZATION & RECLAMATION COMM.

2009 8 10 2009

Bee Hollow AML Project
MDC/DNR Project Responsibilities
August 17, 2009

Bidding and Construction Phases (Fall 2009-Fall 2010):

(Note, design phase is nearing completion, a few minute changes are being added, and all compliance permits have been obtained. MODNR)

- Construction document development, bidding, and award: MODNR with OA assistance
- Construction contract administration, project inspection, construction and earthwork, stormwater control, soil and water amendments, seeding and road rehabilitation: MODNR
- Cooperative project informational sign (MODNR), public area closure signs, public access issues: MDC

Seeding Phase (Spring 2010-Spring 2012):

- Multiple green manure crops, soil amendments, construction repairs, road repairs, storm water repairs: MODNR
- Purchase commercially available, native grass and forb seed, soil amendments, minor repairs: MODNR
- Final, native grass and forb planting (Spring 2011 or 2012): MODNR

Maintenance and Monitoring Phase (Fall 2010- Fall 2012):

- Repairs for stormwater damage, erosion control, acidic hotspots, soil amendments, mulching, native grass seed: MODNR
- Repairs to roads, public use damage and management impacts: MDC
- Standard and appropriate, wildlife management resumes in work areas: MDC
- Monitoring: MODNR, MDC

Tentative Construction Schedule:

- Submit final documents to OA Design and Construction: Fall 2009.
- Contract advertised: Late Fall 2009.
- Pre-bid meeting with bidders: Late 2009 – Early 2010.
- Contract Award: Early 2010.
- Pre-construction meeting with contractor and equipment mobilization on site: Early Winter 2010, the work zones should be closed to public use at the beginning of mobilization.
- Begin construction: January – April 2010.
- Construction contract completion (not yet determined precisely): Late Fall 2010

MISSOURI DEPARTMENT OF NATURAL RESOURCES FOLDER TRANSMITTAL ROUTING SHEET		Document Number: Division Log Number: Program Log Number: Blue LRP 10362
DEADLINE:	Priority for Missing Deadlines:	
DOCUMENT DESCRIPTION: - AML -Bee Hollow Correspondence – MDC Consent Form		
Originator: <u>Teresa Schubert</u>	Telephone: <u>751-4533</u>	Date: <u>12/2/2009</u>
Typist: _____	Document File Name: _____	
FOR SIGNATURE/APPROVAL OF:		
<input type="checkbox"/> DNR Director <input type="checkbox"/> DNR Deputy Director <input checked="" type="checkbox"/> Division Director <input type="checkbox"/> Division Deputy Director <input type="checkbox"/> Other		
PROGRAM APPROVAL: Approved by: <u>Al Johnson</u> Program: <u>LRP</u> Date: <u>12/3/09</u>		
Other Program Approval (Section/Unit): _____ Date: _____ Comments: _____		
ROUTE TO:		
<input type="checkbox"/> DEPARTMENT DIRECTOR APPROVAL: <u>Al Johnson</u> Date: <u>12/7/09</u> Comments: RECEIVED <u>Al Johnson</u> Date: <u>12/7/09</u> REC DEC - 3 2009		
<input type="checkbox"/> DAS ADMINISTRATION APPROVAL: <u>Al Johnson</u> Date: <u>12/7/09</u> Comments: RECEIVED <u>Al Johnson</u> Date: <u>12/7/09</u> REC DEC - 3 2009		
DAS Director: _____ Date: Accounting: _____ Date: Budget: _____ Date: General Services: _____ Date: Internal Audit: _____ Date: Purchasing: _____ Date: Comments: RECEIVED <u>Al Johnson</u> Date: <u>12/7/09</u> REC DEC - 3 2009		
<input type="checkbox"/> LEGAL REVIEW: <u>Al Johnson</u> Date: <u>12/7/09</u> Comments: RECEIVED <u>Al Johnson</u> Date: <u>12/7/09</u> REC DEC - 3 2009		
<input type="checkbox"/> DEPARTMENT DIRECTOR APPROVAL: <u>Al Johnson</u> Date: <u>12/7/09</u> Comments: RECEIVED <u>Al Johnson</u> Date: <u>12/7/09</u> REC DEC - 3 2009		
<input type="checkbox"/> NOTARIZATION NEEDED		
		INITIALS/DATE